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ECONOMIC CONSIDERATIONS REGARDING FUTURE STORING AND PACKING FACILITIES FOR APPLE GROWERS IN THE ENTIAT, WASHINGTON AREA

by

Wendell M. McMillan

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FARMER COOPERATIVE SERVICE
U. S. DEPARTMENT OF AGRICULTURE
WASHINGTON 25, D. C.

Joseph G. Knapp, Administrator

The Farmer Cooperative Service conducts research studies and service activities of assistance to farmers in connection with cooperatives engaged in marketing farm products, purchasing farm supplies, and supplying business services. The work of the Service relates to problems of management, organization, policies, financing, merchandising, quality, costs, efficiency, and membership.

The Service publishes the results of such studies; confers and advises with officials of farmers' cooperatives; and works with educational agencies, cooperatives, and others in the dissemination of information relating to cooperative principles and practices.

ECONOMIC CONSIDERATIONS REGARDING FUTURE STORING AND PACKING FACILITIES FOR APPLE GROWERS IN THE ENTIAT, WASHINGTON AREA

By

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While the Rocky Reach Dam on the Columbia River is expected to bring benefits of irrigation and hydroelectric power to the area, its construction has also created a pressing problem for apple growers in the area around Entiat, Wash. Water backing up behind the dam will flood out all the present apple storage facilities and packinghouses in Entiat, as well as the commercial area of the town itself. Since the present storage and packing facilities can be used only for 1959 crops and must be vacated by July 1960, growers are faced with the immediate problem of deciding on the best way to provide for packing, storing, and marketing their fruit after that time.

Recognizing this as a complex problem, the Boards of Directors of the two apple cooperatives--Entiat-Wenoka Growers, Inc., and Entiat Warehouse Company, Inc.--formally requested the assistance of Farmer Cooperative Service, U. S. Department of Agriculture, Washington, D. C. This request was made at the suggestion of the Chelan County Agricultural Agent, in cooperation with the extension and research staff members of the State College of Washington.

This report, prepared in response to this request, has as its purpose the presentation of an economic evaluation of various alternatives facing growers in the Entiat area. By presenting advantages and disadvantages of different alternatives, we believe that growers will be in a better position to make a sound decision regarding their problem.

While this is an economic evaluation, that is, it is based on an examination of costs and returns to growers, we recognize that there are important noneconomic or intangible factors that need consideration. These include, for example, the particular financial and production situation of individual growers, attitudes and opinions of growers regarding the operating methods of their cooperative, and feelings regarding the future of the community. The importance of these intangibles must be weighed by the growers in addition to the economic factors involved.

Since the amount of time available for study of this problem was severely limited, this analysis is based largely on a review of available research studies having an application to this problem, and on information obtained from persons qualified in such areas as financing, taxation, and engineering. In addition, we made personal contacts to a limited extent in the Entiat area to obtain information from the managers and various directors of the two cooperatives, as well as from other persons.

This report has been prepared to serve as the basis for discussion by the directors, and later on by the growers, in consultation with the cooperatives' legal, accounting, and financial advisors as well as representatives

from the State College's extension and research staff. The report first reviews certain basic factors bearing on the problem and then considers advantages and disadvantages of various alternatives facing growers in the Entiat area as they determine the future of packing, storing, and marketing their fruit.

Actually this problem affords growers in the Entiat area an unusual opportunity for critical self-appraisal of past performance together with a review of events within the industry. There have been many technological advances in harvesting, storing, packing, and marketing. In addition, changes outside the organizations have been made. Competition is becoming keener than in the past and it may be impossible to continue a sound economic unit based on personal preferences. Rather, competition may force growers to make decisions almost entirely on the basis of economic considerations. Failure to do so may result in business failure.

APPLE PRODUCTION POTENTIAL

In considering the future possibilities of apple storing and packing activities in Entiat, it is necessary to have some idea of the apple production potential of the area. While exact production figures for the Entiat area are not available, an approximation can be made from apple shipment data compiled by the Washington Growers Clearinghouse Association of Wenatchee. As shown in table 1, the Entiat-Orondo-Ribbon Cliff area has shipped between 900,000 and 1 million boxes of apples in 4 out of the past 6 years. In addition, other sources estimate that approximately 150,000 boxes of pears are packed in the area.

Of course these figures are for apples and pears packed in and shipped from this area and, especially in the case of pears, some of the fruit is trucked to Entiat packinghouses from as far north as Oroville. This condition, along with the fact that the clearinghouse figures include fruit from a fairly large area, and part of Douglas County, would suggest a downward revision for an estimate of production in the Entiat area. However, with adequate transportation facilities over the Columbia River, and in the area of Entiat, sizable portions of Douglas County fruit may be attracted to modern facilities in Entiat.

Other estimates, based on the volume packed by each of the two cooperatives (table 1) and approximations of volumes packed by other major packinghouses in Entiat, suggest that between 500,000 and 600,000 boxes of apples are packed in the immediate area of Entiat

As to the future production potential for the area, new plantings in the Entiat area west of the Columbia River are likely to increase total production in spite of some loss from removal and by flooding. East of Entiat in Douglas County, there are at present about 300 acres of new plantings mainly in the Bray's Landing area. In addition there are 700 plantable acres which would add another 350,000 packed boxes to the total production of that area. The production of this area will add about 450,000 packed boxes to the total, taking into account the loss by flooding.

It is estimated that there are about 100,000 boxes that would be packed at or near Entiat regardless of what happens in the future. If they were not packed in the two cooperative warehouses or in a merged one, they would be earmarked for existing private facilities.

In addition, there are an estimated 100,000 boxes of pears produced in the Entiat Valley. This volume could be added to the total potential of the area.

Table 1--Approximate apple production in the Entiat-Orondo-Ribbon Cliff area; and apples and pears packed by Entiat-Wenoka Growers and Entiat Warehouse Company, 1953-59

Crop year	Entiat-Orondo-Ribbon Cliff area	Entiat-Wenoka Growers	Entiat Warehouse Co.
	1,000 packed boxes		
1953-54	965	116	93
1954-55	732	117	105
1955-56	899	185	115
1956-57	539	113	87
1957-58	1,000	214	149
1958-59	900	206	132

Source: Data for Entiat-Orondo-Ribbon Cliff area from Washington Growers Clearinghouse Association, Inc., Wenatchee; data for cooperatives from their records.

In summary, it appears that between 500,000 and 600,000 boxes of apples have been packed annually in Entiat in recent years. The Entiat-Orondo-Ribbon Cliff area has shipped upwards of 1 million boxes and has a potential increase of 15 to 20 percent.

What do these production figures suggest concerning future facilities? While the total production of the area cannot reasonably be expected to move through one facility, it appears that a 400,000 - 500,000-box unit would provide an economic basis for handling the present volume of the area, and if this is likely, consideration should be given to possible future enlarging of facilities. In any event, if a decision is made to rebuild, the size of facilities will depend on an accurate survey of grower support.

CONSTRUCTION AND EQUIPMENT COSTS

To make a sound decision on the best way to provide for storing and packing Entiat growers' fruit, some guides are needed as to the amount of capital that would be required. This information is needed in deciding whether or not to rebuild facilities in Entiat, and if so, the number and size of facilities most economical to growers.

The following information is believed to be the best available for modern facilities in the Pacific Northwest. They are estimates based on general or standardized types of facilities. Actual costs of a specific plant in a certain location with specific types of equipment can be made only by qualified architects and engineers from study of the special situation. However, these estimates will serve as a guide to growers in making the basic decision as to packing and storage facilities for their fruit.

Table 2 gives estimates of present-day costs for constructing and equipping plants ranging in capacity from 50,000 to 400,000 boxes. The types of costs included under the headings Construction and Equipment are given in a footnote to the table. These figures do not include boxes, pallets, and other supplies. Neither do they give any consideration to even minor amounts of reusable equipment from the old plants.

The table points out the "economies of scale", that is, the advantages of larger-size or larger-scale operations as compared to smaller operations. In the first place, it is evident that the construction of one large packing and storing facility would require less investment per box than a smaller facility (right-hand column of table). Where the cost of constructing and equipping a 400,000-box plant is approximately $2.16 a box, the cost for a 200,000-box unit is $2.61 a box and for a 100,000-box unit, $2.92 a box.

Secondly, table 2 shows that the total investment for constructing and equipping one large facility would be less than that for two smaller units with the equivalent packing capacity. For example, where a 400,000-box unit would cost approximately $865,000, two 200,000-box units would cost approximately $1,044,800 or $179,800 more.

Third, large-scale operations provide greater opportunities to install and use technologically improved equipment than smaller operations. This can be an advantage, not only from a lower per unit investment cost but also because it makes possible the use of labor saving equipment on a practical basis and perhaps with quality improvement.

Thus, if growers decide to rebuild facilities in Entiat, definite savings can be made by constructing one large unit rather than two smaller facilities.

Table 2. Approximate cost of constructing and equipping apple storage and packinghouses of various sizes

Size of plants (packed boxes)	Approximate costs for Construction 1/	Equipment 2/	Total	Approximate total cost per packed box 3/
50,000	$163,200	$ 27,000	$190,200	$3.80
100,000	229,300	63,000	292,300	2.92
200,000	412,400	110,000	522,400	2.61
400,000	720,000	145,000	865,000	2.16

Source: Construction cost estimates from U. S. Department of Agriculture research on facility layout and design; equipment cost estimates from Fruit Industries Research and Development. Cost data have been brought up to date by adjusting for increases in price level.

1/ Includes lot and site preparation, packingroom, office, cold storage room, machine room, covered area, heating, plumbing, electrical wiring, and refrigeration, but does not include the cost of land and the railroad siding.

2/ Includes complete installation of equipment, but does not include boxes, pallets, and other supplies.

3/ In individual cases, there may be variations of from 25-50 cents a box. These are only average cost figures.

While architectural and engineering firms must be employed to design and construct facilities, blueprints and detailed specifications of warehouses designed by the U. S. Department of Agriculture can be obtained for use as a guide, through the Agricultural Marketing Service, U. S. Department of Agriculture, Post Office Annex Building, Wenatchee. Engineering advice can also be obtained from the State College of Washington, Pullman.

OPERATING COSTS

In determining whether or not to build, and if so what size, it is necessary to examine the relative advantages, from an operating cost standpoint, of various size facilities.

Even casual observation of mass production and specialization in the manufacturing industries of our economy indicates the benefits that can come from large-scale operations. The same can also be seen in agricultural production.

In the first place, we find the greater the volume of production from a given set of resources, whether these resources be orchard land or packinghouses, the lower the per unit cost of each item produced or processed. From this standpoint, cost can be reduced by using the facilities and equipment to capacity, through skillful management, and by use of technological advances--palletized operations and bulk bins, for example, in apple packing. Thus in the case of packinghouses, we would expect that the more modern the equipment, the lower the operating cost per unit would be.

Table 3 shows the differences in cost per box at Washington apple warehouses having modern equipment as compared with those using older methods of operation. Costs averaged 44 cents a box for plants with modern equipment; 47 cents a box with partially modern equipment; and 53 cents with older equipment. Similar costs are shown for other cost items. It is clear that volume and modern equipment go hand in hand. But without question, the most important consideration relative to lower operating costs is modern equipment. Real advantages, costwise, can be had by investing in the most modern types of equipment, if it is the decision of growers that they should rebuild in Entiat.

Table 3.--Effect of modernization of equipment on selected operating costs in 16 apple warehouses in Washington, 1957 season, in cents per loose box

Cost items	Type of equipment		
	Old	Partially modern	Modern
	Cents		
Packing labor costs			
Unweighted average	19	18	16
Range	16 to 22	16 to 18	13 to 18
Total labor costs			
Unweighted average	27	24	21
Range	22 to 35	24 to 25	17 to 25
Total indirect costs			
Unweighted average	18	16	16
Range	10 to 36	15 to 17	13 to 23
Total general and Administrative costs			
Unweighted average	9	7	7
Range	7 to 15	6 to 8	6 to 9
Total costs			
Unweighted average	53	47	44
Range	39 to 76	44 to 49	36 to 57

Source: Uniform Fruit Accounting and Exchange (UFAX)

Secondly, we find that cost per unit is reduced by enlarging the scale or size of operation, often referred to as the "economies of scale." This is primarily because in the operation in large-scale enterprises it is possible to use technological advances and obtain a more efficient combination of labor, power, and equipment. These "economies of scale" are illustrated in the tables 4, 5, and 6.

The data in table 4 comes from accounting records. Thus many other factors, such as age of plant and equipment, type of pack, varieties handled, and skill of management are not held constant. Nevertheless, based on the experiences of 16 Washington apple warehouses in the 1957 season, we see a higher total cost (44 to 76 cents a box, or an unweighted average of 61 cents a box) for plants under 200,000 boxes. This compares with lower total costs of plants over 200,000 boxes (36 to 57 cents a box, or an unweighted average of 47 cents a box). Similar cost reductions are shown for other cost items.

Table 4.--Relationship of size of warehouse to selected operating costs in 16 apple warehouses in Washington, 1957 season, cents per loose box

Cost items	Rated capacity of warehouses		
	Under 200,000 boxes	200,000 to 250,000 boxes	250,000 boxes and over
	cents		
Packing labor costs			
Unweighted average	19	17	18
Range	17 to 22	13 to 18	16 to 21
Total labor costs			
Unweighted average	29	23	25
Range	24 to 35	17 to 25	22 to 30
Total indirect costs			
Unweighted average	22	16	15
Range	13 to 36	13 to 23	11 to 17
Total general and administrative costs			
Unweighted average	10	7	7
Range	7 to 15	6 to 9	11 to 17
Total costs			
Unweighted average	61	47	47
Range	44 to 76	36 to 57	39 to 56

Source; Uniform Fruit Accounting and Exchange (UFAX)

A California study, in which efforts were made to hold other factors constant by standardizing data from the plants, also clearly illustrates the "economies of scale." The effects of volume on fixed cost (insurance, taxes, repairs, interest, and depreciation) for typical apple packing plants in that State are shown in table 5. Fixed costs per packed box of apples dropped rapidly from 36 cents at a pack of 42,800 boxes to 18 cents at a pack of 85,700 boxes, and then to 12 cents at a volume of 128,500 boxes. Costs continued to fall, though less rapidly, to 4 cents a box at a volume of 428,500 boxes.

Table 5.--Effect of annual output on average fixed costs per standard packed box in typical apple packing plants, California, 1950 price level

Season pack	Fixed cost
Boxes	Dollars per box
42,800	$0.355
85,700	.178
128,500	.118
171,400	.089
214,200	.071
257,100	.059
342,800	.044
428,500	.035

Source: "Building and Equipment Costs, Apple and Pear Packing," Mimeo Report No. 141, University of California, December 1952.

A U. S. Department of Agriculture study, where again efforts were made to control factors affecting costs other than size of operation, shows "economies of scale" in the handling of apples within the packing plant. As seen in table 6, cost of handling 1,000 boxes of apples by clamp truck declined from $53,91 for 100,000-box plants to $48.62 in 400,000-box units. Similar declines were seen for other types of apple handling equipment. It should also be noted that by reading the table in the opposite direction, that is, left to right, the economies of using more modern equipment can be seen. For example, cost dropped from $53.91 for clamp trucks to $41.39 for 48-box fork lift trucks.

Table 6.--Comparative Costs for handling 1,000 boxes of apples by various type of equipment in Washington warehouses specified volumes

Size of plant (packed boxes)	Types of handling equipment: Clamp type 2-wheel hand trucks	36-box industrial clamp lift trucks	48-box industrial clamp lift trucks
	Dollars per 1,000 boxes handled		
100,000	$53.91	$46.28	$41.39
200,000	49.31	31.97	32.22
400,000	48.62	30.52	31.03

Source: "Comparative Costs of Handling Apples at Packing and Storage Plants," Marketing Research Report No. 215, Agricultural Marketing Service, U. S. Department of Agriculture, March 1958.

Thus, the actual experiences of apple warehouses in Washington, and of research studies, clearly show the savings that can come from modern facilities and equipment used to capacity, and from large-scale operations. If growers in Entiat plan to rebuild, operating costs can be reduced through construction of large-scale, modern facilities, and through use of these facilities at a near capacity rate.

MARKETING ASPECTS

The previous sections on costs pointed out that large-scale facilities can bring benefits to growers in the form of reduced costs. However, as far as growers' returns are concerned, the reduction of costs is only one side of the coin. The other side of the coin refers to the price received for the fruit after it is stored and packed. Returns to growers depend on both factors--lower costs and higher prices.

Just as large-scale operations can reduce packing and storing costs, so large-scale marketing or selling operations offer better opportunities for reducing per unit selling costs, and even more important, for obtaining better prices for fruit. These benefits arise (1) from improving the competitive position of the sellers (that is, the growers) by reducing the number of sellers on the market in relation to the number of buyers available to purchase apples; and (2) from being in a better position to serve the needs of buyers by having larger quantities and more sizes, varieties, and packs of fruit available to meet the specifications of large-scale buyers in our present-day mass distribution system.

The need for large-scale marketing operations reflects fundamental changes that have taken place in food marketing. The day of the old-time corner grocery is about over, and in its place we see the large modern supermarket geared to mass distribution and selfservice of food to a rapidly expanding population. For instance, in 1939 there were 561,000 food stores in the country, but by 1954 this number had declined to 385,000. Conversely, the average annual volume per store has risen greatly. Half of the new stores built today have an annual gross of $2 ½ million. Along with this decrease in the number of stores and the increase in their volume has come an increasing concentration of large stores--both chains and independents. In 1956, supermarkets--those doing over $375,000 a year--accounted for 9 percent of the stores in the country, but had over 62 percent of total sales. Only 7 years ago, in 1952, supermarkets had only 43 percent of total sales, and in 1950, their share of total sales was about 25 percent.

The just-released Federal Trade Commission's "Economic Inquiry into Food Marketing" has some other figures showing the relatively faster growth of large scale retail firms. From 1948 to 1958, total food store sales increased from $29 billion to $50 billion, or 72 percent. The sales of individual stores and chains with less than 11 stores increased 58 percent. However, sales of chains with 11 or more stores increased during this 10-year period by 118 percent. Stated another way, chains with 11 or more stores accounted for 29 percent of total food store sales in 1948, but in 1958 they were doing 37 percent of total sales.

Besides chain stores having 37 percent of the nation's food sales, another 44 percent of total sales are done by retailers that are affiliated with voluntary or cooperative wholesale buying groups. This means that over 80 percent of all sales in grocery stores are today handled by retailers that obtain their supplies jointly through corporate or voluntary chains.

Along with this decrease in number and increase in size of retail stores, has come an integration of marketing functions. The wholesaling function has largely been integrated with retailing--either by retailers purchasing wholesale facilities, forming cooperative wholesaling groups, or making contracts with private wholesaling firms.

In order to meet the needs of mass distribution, retailers need an assured supply of products, and these products must meet certain specifications as to quality and appearance. This has influenced their procurement policies, that is, their way of buying supplies, including apples.

As Professor George Mehren stated in a paper submitted before a Congressional Sub-Committee on Agricultural Policy, "There have been 2 major changes in the past 15 years in procurement procedures by retailers. First, retailers have become large enough in some local or regional markets to develop their own merchandising policies and thus require suppliers of some food products to sell to the retailers on a straight price-specification basis. Secondly, retailers have become large enough to require many suppliers to adjust the terms of delivery and of services to the physical requirements of the new types of retailing."

While these trends toward large-scale retailing and the integration of supply and demand can be looked upon as an improvement in the efficiency of food marketing, from the standpoint of the grower this trend means fewer, but larger, buyers for their products. For growers to compete effectively and have some influence on price, it becomes essential that they use large-scale operations in the marketing of their products.

Thus, in considering the future of the marketing of apples from the Entiat area, growers can generally benefit themselves economically to a greater extent by recognizing that the trends toward integration and mass distribution require large-scale, joint effort in the marketing of their fruit. In the past there was more opportunity for various marketing methods to be used. But today the marketing pattern is set by the retailer groups; and regardless of who does the marketing, they must all meet the needs of the mass distribution retail system. The more complete organization at the retail level suggests further organization and/or reorganization at the grower level.

TAX SITUATION

The sale of each cooperative's assets to the Public Utility District (PUD) raises the question of the tax liability of (1) the cooperatives, and (2) the members of the cooperative under various methods of handling funds from the settlement.

Let us first consider the tax liability of the cooperatives, as incorporated business organizations, where (1) the funds are allocated to the members, and (2) where the funds are not allocated to the members.

Since both cooperatives have filed "letters of exemption" with the Internal Revenue Service and qualify as exempt cooperatives, it is clear that if the cooperatives allocate the funds from the PUD settlement to the members, on or before the 15th day of the 9th month following the close of the taxable year, the cooperatives themselves have no liability or taxes on these amounts. This allocation can be made in the form of certificates, stock, or book credits, so long as the patron is notified of his share of the allocation.

In addition, the allocations must be made to all past patrons of the cooperative "insofar as is practicable." This is set forth in 26 C.F.R. 1.522-2(d), as follows: "Similarly, if capital gains are realized by the association from the sale or exchange of capital assets held for a period of more than one taxable year, income realized from such gains must be allocated, in proportion insofar as is practicable, to the patrons of the taxable years during which the asset is owned by the association, and to the amount of business done by such patrons during such taxable years."

Even though they qualify as exempt cooperatives, if the funds are not allocated to the members and not used to convert to other facilities, then the cooperatives would be liable for capital gains tax on the difference

between the amount of the settlement and the depreciation in book value of the asset. However, it is not necessary for the cooperatives to allocate these funds to members if the funds are used for a conversion. The basic rule is that where money is received in an involuntary conversion, the money has to be used for the purpose of acquiring property similar or related in use in a period ending "within 1 year after the close of the first taxable year in which any part of the gain upon the conversion is realized." This rule would appear to apply whether the funds were used separately by each cooperative for separate facilities, or jointly for one merged facility after merger or consolidation. 1/ Thus it is clear that it is to the advantage of the growers, if the funds are not used for a conversion, for these capital gains funds to be allocated to the members, and the amounts so allocated disclosed to each member.

Turning now to the tax position of the individual grower-members, their liability will vary with the method of handling the funds after they have been allocated to members, that is, whether (1) the funds remain with the cooperative, or (2) the funds are all, or in part, paid out in cash to the members.

Before considering these situations, it must first be pointed out that at the present time the tax treatment of amounts paid to patrons, or allocated and disclosed to them, has not been clearly determined. It is unfortunate, but nevertheless true, that the following discussion must be qualified by this present uncertainty in tax treatment.

It appears that, at the present time, if the capital gains portion of the PUD settlement is allocated and disclosed to the patrons of the cooperatives, but not paid in cash, such allocations would not be taxable in the hands of the member in the year in which the allocation is made. 2/

If however, the allocated capital gains are all, or partially, paid in cash to the members, then these cash allocations would be taxable in the hands of the patrons. This also applies to allocations not now paid in cash, but paid in cash at a future date to patrons. The question that arises, however, with allocations paid in cash, either now or in the future, is whether these cash allocations are ordinary income and thus taxable at the appropriate Federal income tax rate, or are capital gains and thus taxable at the capital gains rate.

1/ Excelsior - Leader Laundry Co., 8BTA183, Dec. 2820 (Nonacq.)

2/ This conclusion is based upon the tentative regulations issued by the Internal Revenue Service and published in the Federal Register for Wednesday, March 11, 1959. Interested persons have been heard on these regulations and the time for further suggestions has expired, but the final regulations were not issued as of Aug. 21, 1959.

While there is no definite published rule to follow here, we have learned that in several unpublished rulings by the Treasury Department, the Internal Revenue Service has taken the position that such cash allocations are ordinary income and that no part of them can be taken as capital gains. Thus, it appears that if cash allocations of the PUD settlement funds are made, the grower must report them as ordinary income, and his tax liability is thus at the appropriate Federal income tax rate and not at the capital gains rate.

The generally unfavorable price levels of recent years will permit some growers to carry forward losses and thus the tax on cash allocations would be minimized. This factor, as well as the growers having only small equities in the association, will tend to increase pressures for cash payments of equities and capital gains.

FINANCING AND GROWER EQUITIES

Financing is another factor to be considered in appraising the future of warehouse facilities for apples produced in the Entiat area. This includes both the availability of funds and the cost of obtaining such funds.

As to the availability of funds, under terms of the PUD settlement the Entiat-Wenoka Growers received $761,200. According to their May 31, 1959, Balance Sheet they had a mortgage on the facilities of $306,250. Since this mortgage has now been paid off, this association has a net amount available from the settlement of $454,950.

The Entiat Warehouse Company has been offered $460,000 by the PUD as settlement, although the association is asking for $500,000. Since this association had no long-term or mortgage debt as of their May 31, 1959, Balance Sheet, the amount available to the Entiat Warehouse Company will be between $460,000 and $500,000.

Combined, the funds available to the two associations will be between $914,950 and $954,900, or roughly $925,000. No consideration is given to the excess of current assets over current liabilities as a source of funds because of the need for working capital. Neither are the investments that each association has in other cooperatives considered as sources of funds because of their less liquid nature, that is, a certain period of time would be required to convert them into cash, even if this were desirable from other standpoints.

By comparing the amount of funds that are available -- both individually to the cooperatives and combined -- with the need for funds under various alternatives, guides are obtained to evaluate the alternatives. For example, if an association decided to rebuild its own facilities, it would perhaps need a 200,000-box unit (table 1). This would cost approximately $522,400, not including land or railroad siding (table 2). If the association had settlement funds totalling $450,000, this would mean that a minimum of $72,400 would have to be borrowed, or a larger amount would have to be borrowed if part of the growers' equities were paid in cash.

As another example, if the two associations decided to jointly build one 400,000-box unit (table 1), and this would cost approximately $865,000, then the combined settlement funds of approximately $925,000 could be used to own the large-scale facility debt free, with approximately $60,000 to be applied toward working capital needs, land and railroad siding, and/or retiring some of the oldest grower equities.

These, of course, are merely examples, but they suggest a way to evaluate the financial aspects of the various alternatives. But in addition to the factors discussed above there are two other aspects to be considered. One is the availability and cost of borrowed capital, and the other is the financial position of the individual grower-members.

Regarding the availability of borrowed capital, it should be remembered that in general the greater the equity of members in an association the more easily capital can be borrowed, and generally on more favorable terms. In other words, if growers show their strong support of a packing facility by investing a substantial amount in it, then financial institutions - including the Spokane Bank for Cooperatives - could reasonably be expected to lend additional needed funds.

Another advantage in relatively large grower equities, with correspondingly less borrowed capital, is in reduced business interest cost. For example, if a 200,000-box association were to borrow $100,000 at 5 percent, the annual interest cost would be $5,000; or, on a per box basis, it would increase operating costs 2 1/2 cents a box. If the loan were for $200,000, the operating costs would be increased to 5 cents a box, and so forth.

The "economies of scale" can also be seen in relation to borrowed capital. A large-scale operation can borrow a given amount of capital at a lower per unit cost than a smaller unit can. For example, a loan of $200,000 would increase the per box costs of a 200,000-box operation by 5 cents a box. The per box cost of a $200,000 loan by a 400,000-box operation would be only 2 1/2 cents a box. For a 500,000-box operation, the cost would be 2 cents a box.

The financial position of individual grower-members of the association also has an important influence on the total situation. Neither the data nor the time are available to analyze the advantages and disadvantages of each alternative to each grower. But even more difficult would be the intangible influences of each grower's attitude and opinions regarding his position.

Nevertheless, four general groups of growers can be visualized:

1. Growers who are only part-time patrons of the associations, or who have only a very small volume to be packed, stored and/or marketed. Probably to this group the prospect of immediate cash payment of their equities and the capital gain of the association appears more important than warehouse facilities for their fruit.

2. Growers who are long-time members of the associations and are now considering retiring from fruit production. Here again, it appears likely that cash allocations seem most important. However, in view of the tax treatment of funds from an involuntary conversion (see Tax Situation) gradual repayment of equities may be preferable to a lump-sum payment.

3. Growers who are actively in fruit production and plan to continue with it. While cash allocations are no doubt attractice, it seems probable that their future need of modern facilities to pack, store, and market their fruit makes investment in such facilities of greater economic benefit to them than cash allocations. This applies if growers decide to rebuild in Entiat, as well as in the case where they do not rebuild. In this latter case, investment will be required in other cooperatives and in transportation equipment. Of course, settlement funds received as a result of not rebuilding (dissolution of the associations) would be taxed at the Federal income tax rate.

4. Former members of the associations. These persons, as "outsiders," are probably most interested in getting cash for their equities in the facilities. However, the importance of this group will depend on by-law provisions covering former members; and in the number of former members

who are still active growers and may be interested in obtaining the benefits of a modern large-scale facility in Entiat.

No doubt, other financial positions of groups of growers could be outlined, but in any event the interest of growers are not identical and any financing plan must take these divergent views into account. It would appear, for example, that a plan which would specify a definite schedule of repayment in cash of grower equities, retiring the oldest first, may be able to meet the needs of active growers needing the settlement funds for facilities, while at the same tiem assuring retiring members of the regular repayment of their equities. For the most equitable treatment of individual growers, the equities of members should all be on a per unit basis, such as tonnage or acreage.

While pressures will be exerted by growers for cash payments, it is the responsibility of the leadership group to seek the greatest long-run benefits for the growers, whatever course of action this calls for.

ALTERNATIVES

The preceding sections have reviewed various factors bearing on the problems facing growers in the Entiat area. With this information as groundwork, we next present several major alternatives with advantages and disadvantages of each considered in turn. No doubt other alternatives can be presented; in fact, the multiplicity of alternatives is one of the complicating factors in the problem. However, we believe that the four following alternatives are the major ones, and that they will serve as a basis for discussion by growers as they analyze the problem.

Alternative Number 1 - Dissolve the Two Cooperatives.

Under this alternative neither cooperative would rebuild facilities. Instead both cooperatives would dissolve and each member would truck his fruit to Wenatchee or Chelan and have it handled there by existing cooperatives or other packing or storing organizations.

Advantages

1. Inactive members, or members ready to retire from fruit growing, could get in cash their equities and the capital gain, less income tax.

2. Active growers needing storing and packing facilities could get back in cash their portion of the equities and the capital gain, less income tax, and then invest it in transportation equipment and make the investment necessary to join a cooperative in Wenatchee or Chelan.

3. Problems involved in contracting for, and financing new facilities would be avoided.

4. Growers with differeing views as to sales methods could choose the type of sales agency most desirable to them.

5. Tonnage from the Entiat area would tend to increase the volume, and reduce per unit cost, of the cooperatives in Wenatchee or Chelan and the lower cost should be shared by the Entiat growers.

6. Tonnage from the Entiat area would increase the volume of fruit sold by marketing organizations in Wenatchee or Chelan which would increase their competitive advantage (fewer sellers, control of larger share of supply, and greater volume to meet needs of large-scale buyers). This improved competitive advantage should be reflected in better prices and be proportionately shared by Entiat growers.

7. The improved highway, now under construction both north and south of Entiat, would make long-distance hauling more feasible than in the past.

Disadvantages

1. Grower costs in transporting their fruit to packinghouses in Wenatchee or Chelan would be increased, due to the added expense of hauling the fruit greater distances, probably a minimum of 18 miles one way.

   a. Growers not having trucks or other suitable transportation equipment for the trip would have to invest in such equipment.

   b. Operating costs for transporting fruit this distance by straddle carrier may run between 5 and 10 cents a box. Similar or higher costs may be expected for other means of transportation, such as truck, or farm tractors with trailers.

2. Grower returns may be reduced through lowering the quality of the fruit due to more bruising in transit as well as by a longer period elapsing between the time the fruit is picked and the field heat removed.

3. Problems may be involved in finding enough excess capacity in Wenatchee or Chelan to handle immediately all the fruit from the Entiat area.

4. Since the packinghouses now provide about one-half of the tax revenues for the town, not to rebuild would remove this source of revenue for support from the school and other community services. Also, the packinghouses provide full-time employment for some persons (about 12 in the 2 cooperatives) and part-time employment for others (about 175 in the 2 cooperatives during the peak seasons). Not to rebuild would remove this local source of income from these members of the community.

5. Growers receiving their total equities and capital gain in cash all in one lump sum would be liable for Federal income taxes at a relatively higher rate than if the allocations were received over a period of taxable years, except where growers would have losses to carry forward.

6. Five or six small packing plants might arise if the associations do not rebuild. This would mean a smaller volume per plant for selling purposes, and thus less competitive advantage. This lesser competitive advantage would be reflected in lower prices to growers in the Entiat area.

Alternative Number 2 - Completely Merge the Two Cooperatives.

Under this alternative the two cooperatives would merge into one, which would build and operate one storage and packing facility and sell all fruit through one sales agency.

Advantages

1. Construction of one large modern packing and storing facility would require less investment per box than a smaller facility. (See table 2.) Where the cost of constructing and equipping a 400,000-box plant is approximately $2.16 a box, the cost for the 200,000-box unit is $2.61 a box and for a 100,000-box unit, $2.92 per box.

2. The total investment for constructing and equipping one large facility would be less than for two smaller units with the equivalent packing capacity. (See table 2.) Where a 400,000-box unit would cost approximately $865,000, two 200,000-box units would cost approximately $1,044,800; or $179,800 more.

3. A large-scale plant would benefit from the "economies of scale"; that is, the per unit operating cost would be lower in a larger plant than in a smaller one. (See tables 4, 5 and 6.) While the data come from accounting records and thus many factors affecting cost are not held constant, the experience of 16 Washington State warehouses shows higher per box cost (44 to 76 cents a box) for plants under 200,000 boxes as compared with plants over 200,000 boxes (36 to 57 cents a box). A California study shows fixed costs dropping from 36 cents a box for a 43,000-box operation to 4 cents a box for a 429,000-box operation. Similarly, a study of apple handling costs made by the U. S. Department of Agriculture shows a declining cost as size plant increased for each of three different types of handling equipment.

4. A large-scale operation would be able to retain or attract, demand, and afford top-flight management.

5. Just as larger-size plants can operate at lower per unit cost, so the pooling of the fruit of many growers into a large-scale selling or marketing operation can bring benefits to growers. These benefits can come (1) from reduction of selling costs by more efficient utilization of sales personnel; (2) from improved competitive position in relation to buyers by reducing the number of persons selling apples; and (3) from better serving the needs of the market by having large quantities of many sizes, varieties, and packs available to meet the specifications of large-scale buyers in a mass distribution system.

6. Adequate financing, both for facility and operating purposes could probably be obtained more easily and under more favorable conditions by large-scale operation than would be the case for a smaller unit.

7. A plant located at Entiat would provide employment for people in Entiat, and be a source of tax revenues for the community.

Disadvantages

1. Growers' attitudes and opinions regarding relative merits of various sales methods may be difficult to reconcile and combine in a single large-scale selling operation.

2. Determining the equities and investment of the individual members of the two associations would involve a considerable amount of accounting work, and there would be some problems in working out compromises between various past operating methods of the two associations, for example, methods of paying growers for their fruit.

ALTERNATIVE Number 3 - Partially Merge the Two Cooperatives.

Under this alternative the two cooperatives would retain their separate identities, but would jointly finance, construct, and operate one large storing and packing facility. Sales would be handled separately by each cooperative.

Advantages

1. The construction of one large modern packing and storing facility would require less investment per box than a smaller facility. (See table 2.)

2. The total investment of constructing and equipping one large facility would be less than for two smaller units with the equivalent packing capacity. (See table 2.)

3. A large-scale plant would benefit from the "economies of scale"; that is, the per unit operating costs would be less in a larger plant than in a smaller one. (See tables 4, 5 and 6.)

4. A large-scale operation would be able to retain or attract, demand, and afford top-flight management.

5. By retaining the identity of the two organizations for sales purposes, the individual growers would have more choice as to the method of sale for their fruit.

6. Except for packing and storage operations, each cooperative would be able to follow other operating practices as they choose, such as methods of grower payment and financing of grower production.

Disadvantages

1. Since sales would be handled separately by the two cooperatives, the advantages of large-scale selling or marketing operations would be lost.. (See section on Marketing and advantage 5 under alternative number 2).

2. Considerable work as well as mutual understanding would be involved in developing the rules of procedure needed to coordinate the joint operation of storage and packinghouses, so as to insure equal treatment of members of both associations.

3. The necessity to further segregate fruit between the two associations may increase investment and cost.

4. Adequate financing, both for facility and operating purposes, would probably be more difficult to obtain than for a completely merged operation.

5. The difficulty of obtaining a manager who could adequately handle a joint storage and packing operation with two separate sales organizations.

ALTERNATIVE Number 4 - Have Each Cooperative Rebuild Its Own Facilities.

Under this alternative each cooperative would retain its own identity, and each would rebuild its own facilities and conduct its sales and other operations separately as in the past.

Advantages

1. Problems involved in working out mutually satisfactory storing, packing, and selling operations would not arise.

2. Determining the relative share of equities and investments that would be required in a merger, either total or partial, would be avoided.

Disadvantages

1. If each cooperative builds its own facilities, the size of each facility would be smaller than if they built a facility jointly. Thus the amount of investment per box and per grower for a smaller facility would be greater than in the case of one large facility. (See advantages under alternative number 2).

2. The total investment for constructing and equipping two smaller facilities would be greater than for one large unit with the equivalent packing capacity. (See advantages under alternative number 2).

3. A smaller-size plant would not be able to benefit from some technological advances and the "economies of scale"; that is, the per unit operating cost of the smaller units would be higher than in the case of a larger plant. (See advantages under alternative number 2).